



Mitigation plantings in harsh North Texas climate challenge U.S. Army Corps of Engineers team

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DALLAS – Last month the U.S. Army Corps of Engineers was removing Trinity River bottomland trees and brush at the foot of the Martin Luther King Jr. Bridge to reduce flood risk in the city. Woody plants on the 4.7-acre parcel were ground into mulch and hauled away.

At the very same time and several miles downstream, a Corps of Engineers team infused by Texas college students was doing just the opposite. They were helping upgrade habitat by planting new Texas native trees, shrubs and vines to offset the loss.

This is how the mitigation process works under the National Environmental Policy Act within the Dallas Floodway Extension Project. It is part of the Corps' environmental stewardship mission.

It's not always easy but the rewards can be great.

Here's the big picture. The Corps of Engineers Fort Worth District, in support of the city of Dallas, is building two chains of interconnected wetlands on 271 acres near the Dallas urban core that are central to the project's flood-risk reduction goal. This 3.7-mile-long wetland complex, more than half completed, improves life safety by creating another pathway, parallel to the main river channel, to better convey floodwaters through the Dallas Floodway System. It is already lowering flood elevations upstream and reducing risk to hundreds of thousands of people who live and work in Dallas.

The acreage near the Dallas bridge is being cleared to build Wetland Cell A, the first of three wetlands that will complete the flood-conveyance chain. The bottomland ecosystem here will be replaced with a wetlands ecosystem habitat attractive to waterfowl, fulfilling the DFE Project's ecosystem restoration goal. At least 107 bird species have been recorded by the Corps of Engineers and Audubon's Trinity Bird Count at the already completed wetlands just downstream.

To offset plant loss during wetland construction, 1,179 acres of habitat nearby is being upgraded under the NEPA mitigation formula. This is the challenge now before the Corps of Engineers team.

North Texas can be a difficult place for new plantings, said Fort Worth District Environmental Resources Planner Billy Colbert, citing lessons learned in this area. Extremes of heat and cold, but also drought and flooding, are hallmarks of Texas weather along the Trinity River.



Photo: Jim Frisinger/Fort Worth District

Mulch, created by a chipper, is loaded March 1 at the Wetland Cell A Upper Chain of Wetlands construction site in the Trinity River bottomlands in Dallas.



Photo: Jim Frisinger/Fort Worth District

Aaron Schad, a University of North Texas graduate student, installs a cage Dec. 28 to protect a new mitigation planting in southeastern Dallas from predators while UNT student intern Marinda Griffin observes.

To meet the challenge, the Fort Worth District brought in the Corps' Engineer Research and Development Center, which operates the nearby Lewisville Aquatic Ecosystem Research Facility.

Designing the mitigation plan is Aaron Schad, a University of North Texas graduate student, working under the supervision of LAERF's Gary Dick and Chetta Owens.

Much of these mitigation lands lack plant diversity. The new plantings will introduce a rich mixture of acorn-, nut- and fruit-bearing trees, Schad said. These hardwoods and beneficial shrubs will diversify an area now dominated by willows, elms, ash and cottonwoods. They will provide wildlife cover, create new nesting areas and establish a greater and more dependable food supply.

The multi-year planting program will use adaptive management. Each sequential planting will provide important guidance for more effective techniques in future plantings.

This past winter the Corps-college team populated eight, one-acre pilot sites with 28 species of container-grown trees, shrubs and vines. Among these are pecan, sugarberry, black walnut, bur oak, water oak, American beautyberry, rough leaf dogwood, Turk's cap, peppervine, coral honeysuckle and Virginia creeper.

To enhance survival in Texas heat and drought, 12-inch-deep pots were selected for trees and special water-absorbent soil mixture was added during planting. Half the plants will go unwatered, the other half will be monitored for soil moisture and watered whenever soil moisture falls to 10 percent or below, said

Dick, a LAERF research ecologist. Some plants are being caged to protect them from herbivores such as deer and wild hogs.

Next winter a major round of plantings is planned using adaptive management to improve plant survival rates. A final round of plantings is planned a year later.

"We're seeing some sprouting now," said Dick last month. "As the summer progresses, we'll check back periodically," said Dick. "Do we need irrigation to get these species established? And which species will need it? We expect to see differences depending on species.

"What planting technique is suitable for which species? Some species may not be suitable for planting no matter what we do," he said.

The great unknown are the wild hogs. Texas is home to 2.6 million of them, the largest population in the country, according to the Texas Department of Agriculture.

A large herd has reappeared near one of the pilot sites this year despite a city-run hog-trapping program. The digging damage required some replanting, Dick said.

A Corps program is giving Texas college students a chance to get valuable hands-on experience at this mitigation work. Students from the University of North Texas, Texas A&M University, Collin County College and North Central Texas College were all represented on the crew that began the plantings in December, and it helps them earn a few dollars.

"It's good for the Corps of Engineers by helping bring up people in the field that we're working in," said Dick.

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